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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,977	10/10/2006	Wolfgang Wachter	14525-00001-US	2787
23416 7590 11/07/2008 CONNOLLY BOVE LODGE & HUTZ, LLP P O BOX 2207 WILMINGTON, DE 19899			EXAMINER CALANDRA, ANTHONY J	
			ART UNIT	PAPER NUMBER
			1791	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/590,977	Applicant(s) WACHTER ET AL.	
	Examiner ANTHONY J. CALANDRA	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/28/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

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Detailed Office Action

1. The communication dated 8/28/2006 has been entered and fully considered.
2. Claims 1-32 are currently pending.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. The term "substantially the same" in claim 5 is a relative term which renders the claim indefinite. The term "substantially the same" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is unclear what temperature difference that the applicant regards as 'substantially the same'. Therefore the examiner cannot determine the proper metes and bounds of patent protection desired by the applicant.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-4, 6-10, 12, 13, 15, 17, 21, 22, 26, 27, 31 and 32 are rejected under 35

U.S.C. 102(b) as being anticipated by U.S. Patent 3,676,182 SMITH, hereinafter SMITH.

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As for claim 1, SMITH discloses a process of treating a cellulosic material with a stabilization agent to preserve the said cellulosic material [abstract, claim 1]. SMITH discloses that the cellulosic material is cooled before being immersed in the treatment solution [claim 41].

As for claims 2-4, SMITH discloses the treatment fluid is at a temperature of below 32 degrees F and normally about -40 degrees F which falls within the instant claimed ranges [column 9 lines 50-51; 32 degrees F = 0 degrees C, -40 degrees F = -40 degrees C]. SMITH also discloses that the paper is cooled to below -25 degrees F [column 14 lines 20-25; -25 degrees F = -31.2 degrees C].

As for claims 6-8, 21, SMITH discloses deacidification agents including basic alkaline earth metal derivatives such as magnesium [abstract, claim 1].

As for claims 9 and 10, SMITH discloses lower alcohol solvents and hydrofluoro alkanes [claims 16, 17, and 18 and column 7 lines 65-75]. Examiner notes the use of the comprising language as such the fluorinated alkanes of SMITH can also comprise chlorine atoms.

As for claim 12, SMITH discloses the treatment time of one hour which is one specific point if the range of 1 hr to 50 hrs [column 14 lines 40-45].

As for claim 13, SMITH discloses that the cellulosic material does not need be dried and alternatively the water can be frozen [column 4 lines 65-75].

As for claim 15, SMITH discloses a temperature of below 32 degrees F and normally about -40 degrees F for the hydrocarbon liquefied solvents before contacting with the cellulosic material [column 9 lines 50-51; 32 degrees F = 0 degrees C, -40 degrees F = -40 degrees C]. It is the examiners position that liquefied hydrocarbons at below 0 degrees Celsius are necessarily

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cooled to reach said temperature which is below 0 degrees Celsius (as compared to room temperature).

As for claim 17, SMITH discloses that the cellulosic material is added to a treatment chamber and cooled to -25 degrees F (-18 degrees C). Subsequently the hydrocarbon liquid is added column 14 lines 34-36].

As for claim 22, SMITH discloses lower alcohol solvents [claim 16 and column 7 lines 65-75]. Lower alcohols are alcohols with 1-5 carbons. Therefore the lower alcohol solvent carbon range of SMITH overlaps with sufficient specificity to the instant claimed range of 1-4 carbons.

As for claim 26, 27, 31, and 32, SMITH discloses that the excess stabilizing agent is drained and evaporated from the cellulosic material [column 11 lines 10-20 and 9column 13 lines 50-60]. Additionally SMITH discloses freezing or drying the paper such that water can be removed to prevent interference with the reclamation/recycling of solvent [column 4 lines 65-70].

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 5, 14, 19 and 20 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over U.S. Patent 3,676,182 SMITH, hereinafter SMITH.

As for claim 5, SMITH discloses the temperature of the treatment fluid is below 32 degrees F and normally about -40 degrees F which falls within the instant claimed ranges [column 9 lines 50-51; 32 degrees F = 0 degrees C, -40 degrees F = -40 degrees C]. SMITH also discloses that the paper is cooled to below -25 degrees F [column 14 lines 20-25; -25 degrees F = -31.2 degrees C]. It is the examiners position that -40 degrees C and -31.2 degrees C are substantially the same. Further SMITH states that the treatment fluid ranges from – to -40 degrees Celsius and therefore said range would overlap with the even a 0 degree temperature difference between the cellulose and the treatment fluid. Finally, a person of ordinary skill in the

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art would expect that during treatment the fluid and the cellulosic material to reach a thermal equilibrium.

Alternatively, at the time of the invention it would have been obvious to optimize the temperature of the treatment fluid or the cellulose [see e.g. MPEP 2144.05 (II) (B) Optimization of ranges and result effective variables]. Temperature is a result effective variable that affects the freezing of water, penetration of the solvent and the pressure of the solvent [column 9 lines 25-35].

As for claim 14, SMITH discloses that water should either be frozen or dried from the cellulosic material to remove significant amounts of water [column 10 lines 39-45]. Examiner has interpreted the word significant to be at least a reduction of about 1 to 2% water.

Alternatively, at the time of the invention it would have been *prima facie* obvious to optimize the amount of water removed with from the paper to at least 1 to 2% water [see e.g. MPEP 2144.05 (II) (B) Optimization of ranges and result effective variables]. SMITH suggests that water content is deleterious to the process and should be removed, thus said content is a result effective variable.

As for claim 18, SMITH discloses that after contacting the chamber is heated, therefore the treatment chamber is not cooled [column 14 lines 35-40]. However, it is not clear if in the method disclosed the cooling of the chamber stops prior to or immediately after the treatment fluid is added into the chamber. In the case of immediately after there would be a small period of time when cooling could be occurring. It is the examiners position that the time between moving the chamber out of the dry ice to the warming area is not part of the actual treatment time of step (b). Alternatively, at the time of the invention it would have been *prima facie*

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obvious to remove the treatment chamber from the dry ice immediately prior to adding the treatment fluid. It is prima facie obvious to change the order of steps absent evidence of unexpected results [see e.g. MPEP 2144.04 (IV) (C) Changes in Sequence of Adding Ingredients].

As for claim 20, SMITH discloses the of the treatment fluid is a temperature of below 32 degrees F and normally about -40 degrees F which falls within the instant claimed ranges [column 9 lines 50-51; 32 degrees F = 0 degrees C, -40 degrees F = -40 degrees C] which overlaps with the instant claimed range with sufficient specificity.

Alternatively, at the time of the invention it would have been obvious to optimize the temperature of the treatment fluid [see e.g. MPEP 2144.05 (II) (B) Optimization of ranges and result effective variables]. Temperature is a result effective variable that affects the freezing of water, penetration of the solvent and the pressure of the solvent [column 9 lines 25-35].

11. Claims 16, 19, 25, and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 3,676,182 SMITH, hereinafter SMITH.

As for claims 16, 19, and 25 SMITH discloses that the cellulose and the treatment chamber are cooled together with dry ice prior to adding the treatment agent. SMITH does not disclose that the cellulose is cooled and then added to the treatment chamber that has been cooled. At the time of the invention it would have been prima facie obvious to cool the treatment chamber and the cellulose separately prior to adding the cellulose and then the treatment agent. It is prima facie obvious to change the sequence of adding ingredients [see e.g. MPEP 2144.04 (IV) (C) Changes in Sequence of Adding Ingredients]. Additionally a person of

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ordinary skill in the art would expect both the cellulose and the chamber to be cooled whether cooled separately or together.

As for claims 28 and 29, SMITH discloses that the excess stabilizing agent is drained and evaporated from the cellulosic material [column 11 lines 10-20 and 9column 13 lines 50-60]. Additionally SMITH discloses freezing or drying the paper such that water can be removed to prevent interference with the reclamation/recycling of solvent [column 4 lines 65-70].

As for claim 30, SMITH discloses the temperature of below 32 degrees F and normally about -40 degrees F for the hydrocarbon liquefied solvents before contacting with the cellulosic material [column 9 lines 50-51; 32 degrees F = 0 degrees C, -40 degrees F = -40 degrees C]. It is the examiners position that liquefied hydrocarbons at below 0 degrees Celsius are necessarily cooled to reach said temperature which is below 0 degrees Celsius (as compared to room temperature).

12. Claims 10, 11, 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 3,676,182 SMITH, hereinafter SMITH, in view of European Publication 1,111,128 B1 ROGELIO, hereinafter ROGELIO.

As for claim 10, 11, 23, and 24, SMITH discloses a deacidification agent which comprises a magnesium compound, a lower alcohol (which includes propanol), and a chlorofluorocarbon (CFC) [claims 1, 5, 13, and 19]. SMITH does not disclose the hydrofluorocarbon HFC-227ea or HFC-134a. ROGELIO discloses the use of a carbonated magnesium di-n-propylate, n-propanol, and an HFC including either HFC-134a or HFC-227 [paragraph 0015 and 0016] for the purpose of deacidification and preservation of paper

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[paragraphs 0001-0003]. At the time of the invention it would have been obvious to a person of ordinary skill in the art to use to deacidification composition of ROGELIO in the deacidification process of SMITH. ROGELIO gives a clear motivation to substitute HFC-227 and HFC-134a for the CFC of SMITH. ROGELIO states that CFC compounds are deleterious to the ozone layer and HFC do not cause the same ozone degradation problems [paragraphs 0010-0011]. Additionally, ROGELIO gives a clear motivation for substituting the magnesium methoxide of SMITH with a carbonated magnesium di-n-propylate. ROGELIO suggests that magnesium methoxide suffers from drawbacks such as water retention and white spots left on the book surface [0004]. ROGELIO suggests by way of selection that carbonated magnesium di-n-propylate does not suffer the same drawbacks [0016-0018].

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Inorganic Chemistry by Weissmer et al.

This reference discusses 'lower alcohols' and shows that lower alcohols are known in the art to be 1-5 carbon chain alcohols.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY J. CALANDRA whose telephone number is (571) 270-5124. The examiner can normally be reached on Monday through Thursday, 7:30 AM-5:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/AJC/

/Eric Hug/
Primary Examiner, Art Unit 1791